

CLAIMS

What is claimed is:

1. An apparatus for displaying a plurality of data categories each having a plurality of data subcategories, the apparatus comprising:

a display with a current luminous output capacity that is configured to concurrently produce a first visual presentation of a first data subcategory and a second data subcategory of a first data category of the plurality of data categories and a second visual presentation of a fourth data subcategory and a fifth data subcategory of a second data category of the plurality of data categories; and

a processor that is configured to control said display during said concurrent production of said first visual presentation and said second visual presentation to generate:

a luminance difference between the first data subcategory and the second data subcategory of at least thirty percent (30%) of the current luminous output capacity of said display, wherein one of the first data subcategory and the second data subcategory has a luminance greater than or equal to ninety percent (90%) of the current luminous output capacity of the display; and

a transparency for the fourth data subcategory and the fifth data subcategory selected to provide at least partial visibility of said first and second data subcategories through said fourth and fifth data subcategories.

a common luminance for the fourth data subcategory and the fifth data subcategory that is thirty percent (30%) to sixty percent (60%) of the luminous output capacity of said display; and

a color saturation for the fourth data subcategory and the fifth data subcategory that is greater than seventy-five percent (75%).

2. The apparatus of claim 1, wherein said first data category further includes a third data subcategory and the processor is further configured to control said display to generate a luminance difference for said third data subcategory of at least thirty percent (30%) of the current luminous output capacity of said display relative to said first data subcategory and said second data subcategory.

3. The apparatus of claim 1, wherein the processor is configured to control said display to generate a color for each data subcategory of the first data category having a saturation that is inversely proportional to the luminance of said each data subcategory of the first data category.

4. The apparatus of claim 1, wherein said second data category further includes a sixth data subcategory and the processor is further configured to control said display to generate for said sixth data subcategory said common luminance, said color saturation greater than seventy-five percent (75%), and said transparency of at least forty percent (40%).

5. The apparatus of claim 1, wherein the processor is configured to control said display to generate a transparency in the range of forty percent (40%) to sixty percent (60%) for each data subcategory in said second data category.

6. The apparatus of claim 1, wherein the processor is configured to control said display to generate a color saturation of more than ninety-five percent (95%) for each data subcategory in said second data category.

7. The apparatus of claim 1, wherein the processor is configured to control said display to produce the first visual presentation on a first display layer and said second visual presentation on a second display layer superimposed upon said first display layer.

8. The apparatus of claim 1, wherein said processor is configured to control the display to generate a unique hue for each data subcategory.

9. The apparatus of claim 8, wherein said processor is configured to control said display to generate a color difference (Delta-E) between one (1) and two-hundred and eighty (280) between colors of different subcategories.

10. The apparatus of claim 9, wherein said processor is configured to control said display to generate each visual object corresponding to a data subcategory as an area having a boundary, and wherein the luminance, hue, opacity, layer, and color saturation of said each visual object is selected to enable visual discrimination of the boundary of said each data subcategory.

11. The apparatus of claim 1, wherein said first data category comprises EGPWS data and said second data category comprises weather data.

12. The apparatus of claim 1, further comprising a third category of said plurality of data categories, wherein said one or more subcategories of said third data category comprise one or more navigation aid symbols.

13. A method for displaying data from a plurality of data categories each having a plurality of subcategories, the method comprising the steps of:

generating a first visual presentation of a first data subcategory and a second data subcategory of a first data category of the plurality of data categories, the step of generating a first visual presentation comprising the step of assigning display parameters to the first data subcategory and the second data subcategory and further comprising:

determining a current luminous output of a display;

assigning one of the first data subcategory and the second data subcategory a luminance greater than ninety percent (90%) of the current luminous output of the display;

assigning a luminance difference between the first data subcategory and the second data subcategory of at least thirty percent (30%) of the current luminous output capacity of said display; and

generating a second visual presentation of a fourth data subcategory and a fifth data subcategory of a second data category of the plurality of data categories concurrently with said generating of said first visual presentation of said first data subcategory and said second data subcategory, the step of generating a second visual presentation comprising assigning display parameters to said data of the fourth data subcategory and the fifth data subcategory, and further comprising:

assigning the fourth data subcategory and the fifth data subcategory a common luminance that is different from at least one luminance of the first data subcategory and the second data subcategory by

at least thirty percent (30%) of a current luminous output capacity of the display;

assigning one common color saturation greater than seventy-five percent (75%) to said data subcategories in said second data category; and

assigning a transparency to said data subcategories in said second data category selected to provide at least partial visibility of said first and second data subcategories through said fourth and fifth data subcategories; and

illuminating each of said first visual presentations concurrently with illuminating said second visual presentation.

14. The method of claim 13, further comprising the step of assigning colors to said first data subcategory and said second data subcategory of the first data category having saturations that are inversely proportional to each different luminance, respectively.

15. The method of claim 13, wherein the step of generating a second visual presentation comprises assigning each data subcategory of the second data category a common luminance between thirty percent (30%) and sixty percent (60%) of the current luminous output capacity of the display.

16. The method of claim 13, wherein the step of generating a second visual presentation comprises assigning a transparency between forty percent (40%) and sixty percent (60%) to each data subcategory of the second data category.

17. The method of claim 13, wherein the step of generating a second visual presentation comprises assigning a first display layer to said first visual presentation and assigning a second display layer to said second visual presentation, wherein said second display layer is superimposed on said first display layer.

18. The method of claim 13, wherein each displayed data subcategory includes an area with a boundary, the steps of generating a first visual presentation and generating a second visual presentation comprising assigning to each data subcategory a hue, luminance, opacity, and color saturation together configured to cause each boundary of said first display layer to be differentially visible through said second layer.

19. The method of claim 13, wherein the step of generating a first visual presentation and a second visual presentation comprises assigning a color difference (Delta-E) of between one (1) and two-hundred and eighty (280) between colors of different subcategories.

20. The method of claim 13, wherein the step of generating a first visual presentation includes generating a presentation of a third data subcategory and assigning a luminance to said third data subcategory differing from the luminances of the first data subcategory and the second data subcategory by at least thirty percent (30%) of the current luminous output capacity of said display.

21. The method of claim 13, wherein the step of generating a second visual presentation includes generating a presentation of a sixth data subcategory and assigning said common luminance, said common color saturation, and a transparency to said sixth data subcategory to provide at least partial visibility of said data subcategories of said first data category through said sixth data subcategory.

22. The method of claim 13, further comprising the step of concurrently generating a third visual presentation of a third data category of said plurality of data categories.

23. The method of claim 22, wherein said third data category comprises navigation aid symbols.

24. A method for displaying on an aircraft cockpit display flight data from a plurality of flight data categories each having a plurality of flight data subcategories, the method comprising the steps of:

determining a current luminous output capacity of said aircraft cockpit display;

assigning a first unique set of display parameters to each flight data subcategory of said plurality of flight data subcategories in said first flight data category,

wherein at least one said display parameter of said first unique set of display parameters affects luminance to display one particular said flight data subcategory of said plurality of flight data subcategories in said first flight data category with a luminance that is greater than ninety percent (90%) of the current luminous output capacity of said aircraft cockpit display;

wherein at least one said display parameter of said first unique set of display parameters affects luminance to display each flight data subcategory in said first flight data category other than said one particular flight data subcategory with a luminance differing from other flight data subcategories in said first flight data category by at least thirty percent (30%) of said current luminous output capacity of said aircraft cockpit display; and

assigning a second unique set of display parameters to each flight data subcategory of said plurality of flight data subcategories in said second flight data category,

wherein at least one display parameter of said second unique set of display parameters affects luminance to display each of said plurality of flight data subcategories in said second flight data category with a common luminance

between thirty percent (30%) and sixty percent (60%) of the current luminous output capacity of said aircraft cockpit display; and

wherein at least one said display parameter of said second unique set of display parameters affects transparency to display flight data subcategories in said second flight data category at a transparency selected to provide at least partial visibility of said data subcategories of said first data category through said data subcategories of said second data category.

25. The method of claim 24, wherein at least one said display parameter affects color saturation to display each of said plurality of flight data subcategories in said first flight data category at a color saturation that is inversely proportional to said luminance of said each flight data subcategory in said first flight data category, respectively.

26. The method of claim 24, further comprising the step of, for each of said plurality of flight data categories, illuminating a visual presentation of said flight data categories according to said unique set of display parameters.

27. The method of claim 24, further comprising the step of concurrently illuminating each said visual presentation on said aircraft cockpit display.